

Name: _____

Final Exam Study Guide

Algebra 1A 2015

***We will be completing this study guide in parts. If you know how to complete all problems on this Study Guide AND complete additional suggested items, you will do very well on the Final Exam.**

***If you choose to skip a night of studying and practice, you probably will not do as well as you would like!**

***Remember that you should also practice ADDITIONAL problems offered, actively PARTICIPATE in all classroom REVIEW, and attend TUTORIAL!**

***Twenty minutes per night starting TONIGHT!**

***Please answer all written responses in at least TWO complete sentences using at least TWO algebraic terms.**

Part One: Expressions and Order of Operations

Extra Practice:

1. Algebraic Writing: Answer each question in complete sentences using algebraic terms. Be sure to echo the prompt.

a. Name one similarity and one difference between an expression and an equation. Be sure that the similarity and the difference each relate to algebra.

b. Between multiplication and division, how do you decide which operation should be performed first in an expression?

c. What does algebra mean in Arabic? Explain how this definition makes sense by **relating it to at least one of the algebraic terms from this unit.**

2. Symbols to Represent Operations : Given that $g \& h$ means $3g - h$, evaluate the following.

a. $6 \& 1$

b. $-3 \& 4$

3. Writing Algebraic Expressions and Equations: Write an algebraic expression or equation for each. Draw a smiley face to the right for an extra point.

a. the quotient of eleven and x

b. twice a number z increased by two

c. The sum of two and z is y.

4. Evaluating Expressions: Evaluate each expression if $x = 2$, $y = 4$ and $z = 3$.

a. xyz

b. $2y - x + z$

c. $3(y - z + x)$

5. Order of Operations: Show all work and box your final answers.

a. $6 - 1 + 7$

b. $\frac{2(5) + 8 - 3}{11 - 6}$

c. $20 - [2(6 + 3) - 10] + 1$

d. $4 + 5(3) - 6 + 11$

6. Integer Operations:

a. $2 - 5 =$	b. $2 + (-5) =$	c. $-2 - 5 =$
d. $-2 - (-5) =$	e. $2(5) =$	f. $(-2)(-5) =$
g. $(-2)(5) =$	h. $2(-5) =$	i. $10/(-2) =$

7. Opposites and Absolute Value:

a. What is the opposite of eight?

b. What is the absolute value of eight?

c. What is the product of the absolute value of negative one and the opposite of five?

d. What is the sum of the opposite of six and the opposite of negative three?

8. Word Problem: A diver is thirty-five feet below the surface of the water. He swims even further down for another fifty-two feet. What is his depth, with respect to the surface of the water? Write your answer as an integer and explain how you arrived at your answer.

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Part Two: Simplifying Expressions

Extra Practice:

9. Give an example of two like terms and explain HOW they are like terms.

10. What two operations does the distributive property combine in this example? Explain.
Example: $-12(3 + 7)$

11. Are the terms $12a^2b$ and $16ab^2$ like terms? Explain your reasoning.

Simplifying Expressions: Simplify each expression as completely as possible. BOX your final answers.

12. $5 - 4 + 8 - 7$

13. $6(5x + 1)$

14. $-(x - 5)$

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15. $-11(2w + 3)$	16. $4(2y + 2) + 7y$	17. $6x + 4x$
18. $6x - 4x$	19. $-6x - 4x$	20. $-6x - (-4x)$
21. $6(w - 3) - w + 1$	22. $a + b + a + b + a + b$	23. $-10y - 9 + 3y - 11$

24. Matching: Please write the CAPITAL LETTER of the expression that matches each phrase.

- | | | | | |
|---------------|-------------|---------------|---------------|-------------|
| A. $4y$ | B. $4 + y$ | C. $4(2 + y)$ | D. $4 - y$ | E. $y - 4$ |
| F. $2(4 + y)$ | G. $4 + 2y$ | H. $4/y$ | I. $2(y - 4)$ | J. $2y - 4$ |

- _____ the sum of four and twice y
- _____ the quotient of four and y
- _____ four decreased by y
- _____ four less than y
- _____ the product of four and y
- _____ two times the difference of y and four
- _____ the sum of four and y
- _____ four multiplied by the quantity of two plus y
- _____ twice y subtracted by four
- _____ two multiplied by the sum of four and y

25. Word Problem:

Some WLPCS students go to the zoo and see some lions.

- Define a variable to represent the number of lions. _____
- They see five more leopards than lions. Write an expression for the number of leopards they see, using your variable from part a.

- They see twice as many monkeys as leopards. Write an expression for the number of monkeys they see, using your variable from part a.

- Write AND SIMPLIFY an expression for the total number of lions, leopards and monkeys the students see. BOX your final answer.

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Part Three: Probability and Properties

26. **Six-Sided Die:** Calculate the following probabilities if you are rolling a six-sided number die. Reduce all fractions.

a. $P(3)$	b. $P(\text{odd})$	c. $P(\text{not } 1)$
d. $P(1, 2, 3)$	e. $P(\text{odd, odd, odd})$	d. $P(1, 5, 7)$

27. **Compound Probability without Replacement:** You are picking out your clothes for the week. Once you wear a shirt, you will not wear the shirt again that week. Suppose you have **three red shirts, four blue shirts, one white shirt, and two green shirts.**

What is the probability that you will randomly wear a white shirt, then a blue shirt?

28. Matching Properties: Write the CAPITAL LETTER of the property that each example illustrates.

Property Word Bank:

A. Inverse Property of Multiplication

B. Inverse Property of Addition

C. Commutative Property of Addition

D. Associative Property of Addition

E. Multiplication Property of Zero

F. Distributive Property

i. $6 + (12 + 3) = (6 + 12) + 3$ _____

ii. $6 + (12 + 3) = 6 + (3 + 12)$ _____

iii. $6 + (-6) = 0$ _____

iv. $6(12 + 3) = 6(12) + 6(3)$ _____

v. $6\left(\frac{1}{6}\right) = 1$ _____

vi. $6(0) = 0$ _____

29. Multiple Choice: Write the CAPITAL LETTER of the correct answer choice.

i. _____ This property states that "If $a = b$, then $b = a$."

A. Inverse Property of Equality

B. Distributive Property

C. Associative Property of Addition

D. Symmetric Property

ii. _____ Use the Commutative Property of Multiplication to rewrite the following expression:
 $xyz =$ _____

A. xzy

B. $x(y + z)$

C. yxz

D. Both A and C

E. Both B and C

iii. _____ Which equation illustrates the Identity Property of Addition?

A. $7 + 0 = 7$

B. $7 + (-7) = 0$

C. $7 - 7 = 0$

D. $7 + 8 = 8 + 7$

iv. _____ Which property is illustrated by the equation: $a(bc) = (ab)c$?

A. Associative Property of Addition

B. Commutative Property of Addition

C. Associative Property of Multiplication

D. Commutative Property of Multiplication

Two more parts to come!